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Application No. 10/733,383
Reply to Office Action of April 2, 2008

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AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus for ~~automatically switching an audio mode displaying audio~~, the apparatus comprising:

a preprocessing part ~~for collecting~~ configured to collect sample audio data ~~in advance, then analyzing a feature of the sample audio data and extracting features according to kinds of audios~~, to extract features from the collected sample audio data and to classify the extracted features according to preset audio kinds; and

an audio mode determining part ~~for~~ configured to determine an audio kind of a listening audio by pattern-matching a feature of the an input-listening audio feature with the classified features according to the kinds of audios to determine the kind of the listening audio and automatically switch the to switch an audio mode according to the determined audio kind.

2. (Currently Amended) The apparatus of claim 1, wherein the preprocessing part comprises:

a sample audio database ~~for collecting~~ configured to collect and ~~storing to store~~ the sample audio data in the sample audio database;

a first feature extracting part ~~for extracting~~ configured to extract the features of the sample audio data stored in the sample audio database; and

an audio kinds sorting part ~~for sorting~~ configured to classify the extracted features of the sample audio data extracted from the first feature extracting part according to the preset audio kinds.

3. (Currently Amended) The apparatus of claim 2, wherein the first feature extracting part extracts the features ~~of from~~ the sample audio data by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

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4. (Currently Amended) The apparatus of claim 2, wherein the audio kinds sorting part ~~sorts~~ classifies the features according to the preset audio kinds by using either any of a learning model or and a statistical model.

5. (Currently Amended) The apparatus of claim 1, wherein the audio mode determining part comprises:

a second feature extracting part ~~for extracting~~ configured to extract the feature of from the listening audio if the listening audio is inputted;

a pattern matching part ~~for pattern matching~~ configured to pattern-match the feature of the listening audio with the classified features according to the kinds of audios sorted by the preprocessing part and outputting a result of the pattern-matching;

an audio sorting determining part for determining an audio kind ~~that of which a feature is~~ the most similar to the feature of the listening audio ~~from~~ based on the result of the pattern-matching ~~of the pattern-matching part;~~ and

an audio mode switching part ~~for automatically switching~~ configured to switch a current listening audio mode to by using an audio mode of with respect to the determined audio kind ~~determined from the audio-sorting determining part.~~

6. (Currently Amended) The apparatus of claim 5, wherein the second feature extracting part extracts the features ~~of from the input~~ listening audio by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

7. (Currently Amended) The apparatus of claim 5, wherein the pattern-matching part pattern-matches the feature of the listening audio with the classified features by using ~~utilizes~~ any one selected from the group consisting of dynamic programming, HMM (Hidden Markov Model) method, and neural network method.

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8. (Currently Amended) A method for ~~displaying automatically switching audio mode~~, the method comprising the steps of:

(a) ~~collecting sample audio data in advance, then analyzing a feature of the sample audio data and extracting features according to kinds of audios, extracting features from the collected sample audio data and classifying the extracted features according to preset audio kind; and~~

~~(b) if a listening audio is inputted, pattern matching a feature of the listening audio with the features according to the kinds of audios in the step (a) to determine the kind of the listening audio and automatically switch the audio mode according to the determined audio kind~~

(b) pattern-matching a feature of a listening audio with the classified features if the listening audio is inputted and outputting a result of the pattern matching, determining an audio kind of a listening audio based on the result of the pattern-matching and switching an audio mode according to the determined audio kind.

9. (Currently Amended) The method of claim 8, wherein the step (a) comprises the steps of:

collecting and storing the sample audio data;

extracting features ~~of from~~ the stored sample audio data; and

~~sorting-classifying the extracted features of the extracted sample audio data according to the preset audio kinds.~~

10. (Currently Amended) The method of claim 9, wherein the step of extracting step is performed by any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

11. (Currently Amended) The method of claim 9, wherein the ~~sorting-classifying~~ step is performed by either a learning model ~~or and~~ a statistical model.

12. (Currently Amended) The method of claim 8, wherein the step (b) comprises the steps of:

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extracting the feature ~~of~~ from the listening audio if the listening audio is inputted;
pattern-matching the feature of the listening audio with the classified features ~~according~~
~~to the kinds of audios sorted in the step (a) and outputting the result of the pattern-matching;~~
determining an audio kind ~~that of which a feature~~ is the most similar to the feature of the
listening audio ~~from based on the result of the pattern-matching;~~ and
~~automatically~~ switching a current listening audio mode to ~~by using~~ an audio mode with
respect to ~~of~~ the determined audio kind.

13. (Currently Amended) The method of claim 12, wherein the step of extracting the
~~listening audio the feature~~ is performed by any one selected from the group consisting of ICA
(Independent Component Analysis), PCA (Principle Component Analysis), clustering, and
vector quantization.

14. (Currently Amended) The method of claim 12, wherein the step of pattern matching
~~step~~ is performed by using any one selected from the group consisting of dynamic programming,
HMM (Hidden Markov Model) method, and neural network method.